SCREWWORM

PROGRAM PROFILE

Goal	To prevent economic loss to the US livestock industry from screwworms.
Enabling Legislation	21 USC 114; PL 80-8; Act of February 28, 1947.
Economic Significance	This program conducts activities to prevent the reintroduction of the worm-like larvae of the screwworm fly into the United States by eradicating this insect from Mexico and Central America and establishing a permanent sustainable sterile fly barrier zone in Panama. This parasite causes great damage by entering wounds and feeding on the flesh of livestock and other warm-blooded animals, including humans. Reintroduction of the screwworm would seriously affect livestock producers, consumers, US meat-product exports, and public health in general. Without a screwworm program, losses in the United States would be an estimated $540 million annually: $244.0 million annually for producers and $293 million in lost meat supply. The cost to eradicate the screwworm again from the United States would depend on the extent and severity of the reintroduction and the time of year. A new outbreak similar to the last large outbreak of up to 29,000 reported cases, would cost approximately $1.27 billion: Control costs of $36.4 million; direct costs of $273.9 million; and economic impact of $958.4 million. Continued exclusion would ensure continued animal exports led by beef and pork continue to grow. The US is the largest beef producer in the world with approximately 98.5 million head in early 1999. US beef exports are projected to surpass 1 million tons in 1999 after reaching a record 985,000 tons in 1998. Also, US cattle exports in 1999 are expected to be the strongest since 1992 at 300,000 head.
Principal Approach And Methods Used to Achieve Goals	This is an eradication program. Program methods include sterile fly dispersal, surveillance, quarantine, and wound treatment. The principal approach used in this eradication program is the Sterile Insect Techniques (SIT), a form of biological control. Through this process, millions of sterile

screwworm flies are produced at a facility located in Tuxtla Gutierrez in the Mexican State of Chiapas.

History

Sterile fly method first used in Curacao in 1954. Screwworms were eradicated from the Southeastern US in 1950's and the Southwest in 1966. Southwestern US became re-infested in 1970's and 1980's. The pest was again eradicated from US in 1979 and 1982. An agreement for a joint program with Mexico to eradicate screwworm down to the Isthmus of Tehuantepec was signed in 1972. Sterile fly production began in Tuxtla Gutierrez, Mexico, in late 1976. In 1984, the program succeeded in eradicating the pest to the Isthmus. In 1986, the Mexico-U.S. agreement was amended to allow eradication through the rest of Mexico and into Central America. In 1987, the Mexico-U.S. Commission began eradication efforts in the Yucatan and signed agreements with Guatemala and Belize to allow eradication in those countries. In February 1991, Mexico was declared screwworm free; however, screwworms were again detected in FY 1992. An emergency was declared and eradication efforts were completed in December 1993. USDA entered into agreements with El Salvador, Honduras, and Nicaragua in 1991 and Costa Rica in 1993. Self-sustaining screwworm populations were eliminated from Belize (1992), Guatemala (1993), El Salvador (1993), Honduras (1996), and Nicaragua (1998). Cooperative program activities began in Costa Rica in October 1995, delayed over a year due to the 1992 outbreak in Mexico. USDA signed an agreement with Panama in February 1994 permitting the program to initiate operations in Panama, plan and construct the mass rearing facility, and then operate the facility to maintain a permanent biological barrier.

State and Local Cooperation

An 80%-20% cost sharing agreement exists between US and Mexico; although, either party may make additional voluntary contributions without regard to cost sharing. The Nicaragua, Costa Rica, and Panama agreements are structured in an 90%- 10% cost share arrangement; USDA provides the sterile insects and USDA and host countries share in aircraft operations, field monitoring, and surveillance activities.

Involvement of Other Agencies

ARS conducts research.

RESOURCE DATA

	Obligations			
	Direct	Cooperator	User Fees	Staff-Years
FY 1996	31,267,984	6,336,563	--	74
FY 1997	31,509,472	5,788,300	--	94
FY 1998	29,684,222	7,243,588	--	72
FY 1999	27,557,876	--	--	65
FY 2000 (est.)	30,276,000	--	--	64
FY 2001 (est.)	30,400,000	--	--	63

	APHIS	Coop	Total	CCC	Contingency Fund
Cum. (FY 99)	$910,810,065	$138,076,562	$1,021,328,751	--	$2,899,888

RECENT ACCOMPLISHMENTS

El Salvador, Guatemala, Belize, and Honduras

Honduras was declared screwworm-free in August 1996 after completion of country wide reviews to verify their screwworm-free status. The US participation in the cooperative program ended in September 1996. Each country is now responsible for continuing surveillance and inspection activities.

Nicaragua

Nicaragua was declared free of screwworms in October 1999. The Ministry of Agriculture in Nicaragua will assume responsibility for surveillance and inspection.

Costa Rica

Costa Rica has also made tremendous progress in the eradication of screwworm. In FY 1999, field surveillance reported only 19 screwworm infestations, most of which occurred in the extreme southern part of the country near the Panama border. Eradication efforts are expected to be completed by July 2000.

Jamaica

To further safeguard U.S. livestock, the program is providing technical assistance to Caribbean countries. Jamaica began screwworm eradication in July 1999, purchasing sterile flies from the production facility in Chiapas, Mexico and with funds from the Food and Agriculture Organization and the International Atomic Energy Administration.

Panama

The focal point of eradication has now shifted from Costa Rica to Panama. The program began aerial dispersal of sterile screwworm flies over western portions of the country in July 1998, and advanced to the Canal in the first quarter of FY 1999. In the fourth quarter, sterile fly dispersal expanded to all but the last 5 to 10 kilometers of Panama; complete coverage is not yet possible due to guerrilla activity in the area. Even so, the program expects the eradication phase to be complete in 2001. This program would then shift to the maintenance of a biological barrier. However, field surveillance activities are finding increasing numbers of screwworms as detection work expands across the country.

Mexico Sterile Fly Facility

The sterile fly production facility in Tuxtla-Gutierrez, Mexico, produced and distributed approximately 7.3 billion sterile insects in FY 1999 for an average of 142 million sterile screwworm flies per week. We are continuing collaborative efforts with the government of Mexico and others to phase out production by FY 2004, and to develop possible solutions for transitioning workers at the facility to alternative employment. In April 1999, the Mexican Secretariat of Agriculture and the National Union of the Mexican Secretariat of Agriculture and Water Resources negotiated an agreement for a generous severance plan for the work force at the Tuxtla Gutierrez facility. Through this agreement, the program was able to reduce the work force from 650 employees to the approximately 300 needed for current production levels.

Proposed Sterile Screwworm Facility in Panama

In March 1998, the Southwest Animal Health Research Foundation (SWAHRF) presented a proposal for funding construction of the new production facility in Panama. Under this proposal, the industry would finance design and construction, including an architectural and engineering

(A&E) study. SWAHRF would lease the facility back to the Joint Commission and donate the building to the Commission after recouping their investment. The proposal calls for a facility that would cost up to $86 million for three modules. A master plan, including schematics and a program of requirements was completed in August 1999. After a 3-year construction period, the facility is expected to be operational in early 2003. The Joint Commission, through the cooperative program, will amortize the cost of the new plant over 10 to 15 years.

Backup Facility

The Department does not plan to open a backup screwworm facility in the United States at this time due to costs and the concerns of the livestock industry. The proposed new facility in Panama would produce a sufficient number of flies to maintain the sterile fly barrier in Panama. In addition, the new plant should also provide sufficient capacity to be able to respond to reinfestations of screwworm-free countries, if such outbreaks are detected quickly and control and eradication measures are started immediately.

Panama Donation

The Government of Panama currently has available approximately $6 million of the original $10 million to meet, in part, their obligations under the Panama/US Screwworm Commission which include the construction of a sterile fly facility. The remaining $4 million was used in fiscal years 1997 and 1998 to pay for most of the costs of initiating an eradication program plus its contribution to the US/Panama Screwworm Commission. In addition, the Panamanian Ministry of Agriculture and Livestock Development has requested its Government to provide an additional $1 million per year for the next ten years for the new screwworm production plant. Panama also contributed the land for the facility valued at $10 to $12 million.